SPECTRUM SIMULATION FOR SEMICONDUCTOR FEATURE INSPECTION

ABSTRACT OF THE DISCLOSURE

Techniques for determining certain parameters of semiconductor specimens using X-ray spectroscopy are described. The invention can be used to determine parameters such as composition, dimensions, and density of semiconductor specimens. Specifically, an X-ray spectrum simulation algorithm is used to iteratively generate a theoretical X-ray spectrum for a semiconductor specimen having certain parameters. The iterative generation of theoretical X-ray spectrums continues until one of the theoretical X-ray spectrum closely matches the actual X-ray spectrum measured off of the specimen. In an alternative embodiment, this technique of generating theoretical X-ray spectrums can be used in combination with a pre-existing library of X-ray spectral signatures for semiconductor specimens having various parameters.